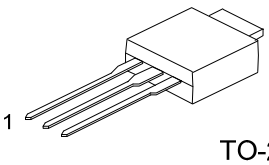
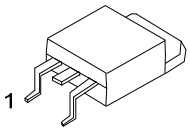
2SD1804

NPN SILICON TRANSISTOR

HIGH CURRENT SWITCHING APPLICATIONS



TO-251



TO-252

Lead-free: 2SD1804L
Halogen-free:2SD1804G

■ FEATURES

* Low collector-to-emitter saturation voltage
* High current and high f_T
* Excellent linearity of h_{FE}.
* Fast switching time
* Small and slim package making it easy to make UTC **2SD1804** applied sets smaller.

■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
2SD1804-x-TM3-T	2SD1804L-x-TM3-T	2SD1804G-x-TM3-T	TO-251	B	C	E	Tube
2SD1804-x-TN3-R	2SD1804L-x-TN3-R	2SD1804G-x-TN3-R	TO-252	B	C	E	Tape Reel

2SD1804L-x-TM3-T (1)Packing Type (2)Package Type (3)Rank (4)Lead Plating	(1) R: Tape Reel, T: Tube (2) TM3: TO-251, TN3: TO-252 (3) x: refer to Classification of h_{FE1} (4) G: Halogen Free, L: Lead Free, Blank: Pb/Sn

■ ABSOLUTE MAXIMUM RATING (Ta=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	60	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Dissipation	Ta=25°C	P_D	1	W
	T_C=25°C		20	W
Collector Current		I_C	8	A
Collector Current(PULSE)		$I_{C(PULSE)}$	12	A
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55~+150	°C

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

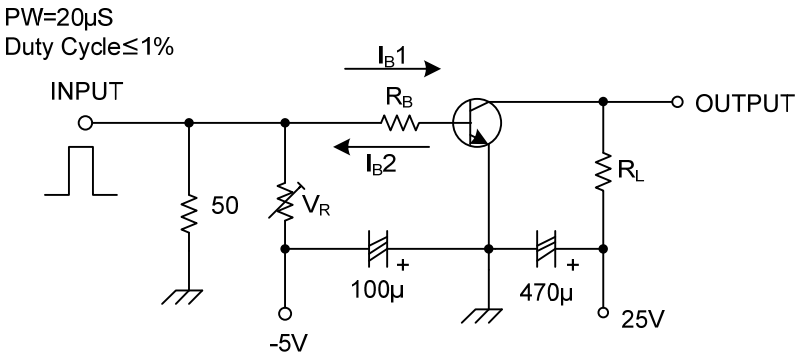
■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C=10μA, I_E=0	60			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=1mA, R_{BE}=∞	50			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=10μA, I_C=0	6			V
Collector Cutoff Current	I_{CBO}	V_{CB}=40V, I_E=0			1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			1	μA
DC Current Gain	h_{FE1}	V_{CE}=2V, I_C=0.5A	70		400	
	h_{FE2}	V_{CE}=2V, I_C=6A	35			
Gain-Bandwidth Product	f_T	V_{CE}=5V, I_C=1A		180		MHz
Output Capacitance	C_{ob}	V_{CE}=10V, f=1MHz		65		pF
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C=4A, I_B=0.2A		200	400	mV
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C=4A, I_B=0.2A		0.95	1.3	V
Storage Time	t_{STG}	See test circuit		500		ns
Fall Time	t_F	See test circuit		20		ns

■ CLASSIFICATION OF h_{FE1}

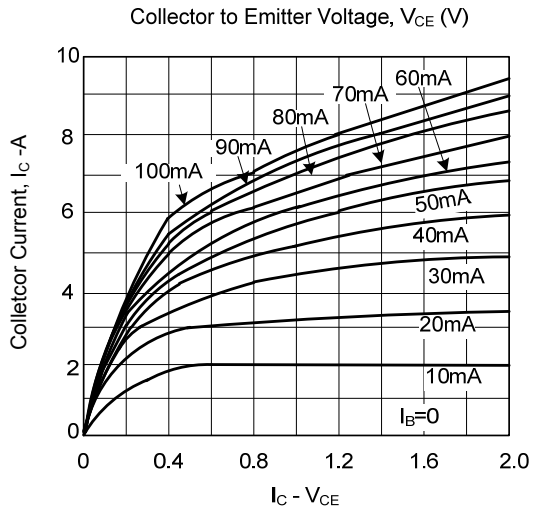
RANK	Q	R	S	T
RANGE	70-140	100-200	140-280	200-400

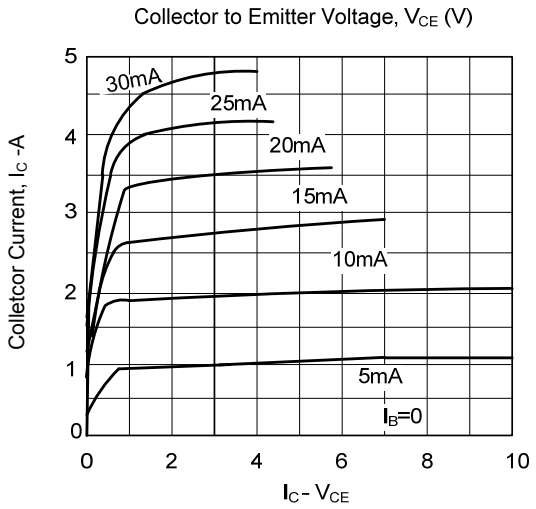
■ TEST CIRCUIT

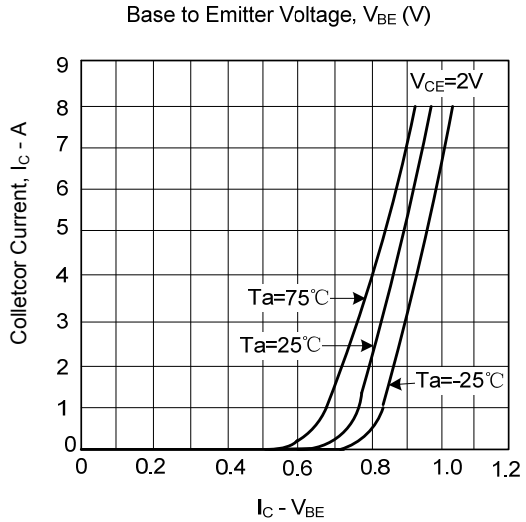


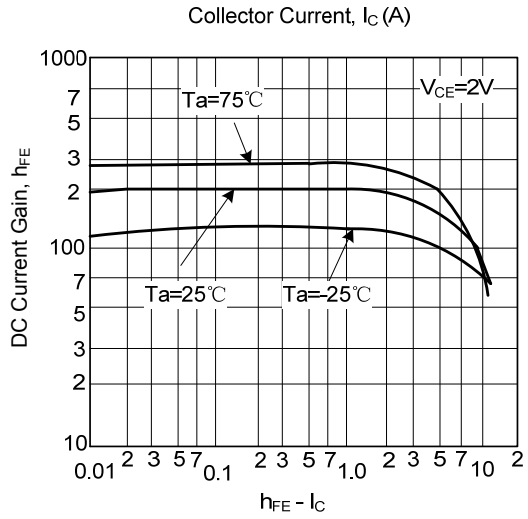
I_C=10 I_B1= -10 I_B2=4A
Unit(resistance: Ω, capacitance: F)

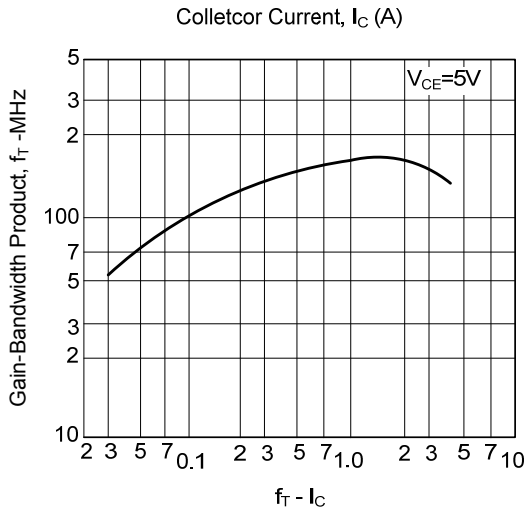
■ TYPICAL CHARACTERISTICS

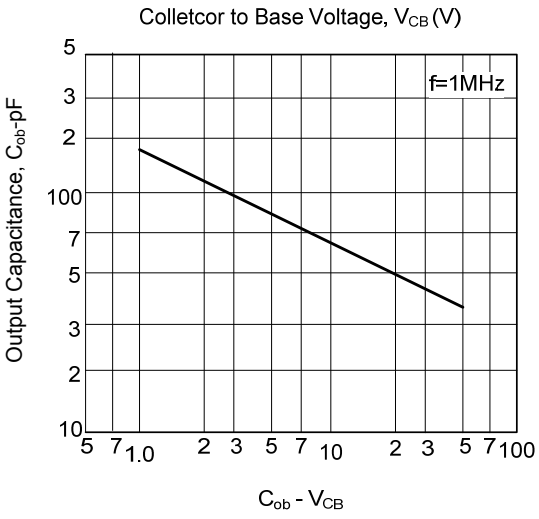












■ TYPICAL CHARACTERISTICS(Cont.)